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Future Conflict:
A Survey of Recent Literature

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PREFACE

This document, prepared by the Joint Advanced Warfighting Program (JAWP) at the Institute for Defense Analyses (IDA), provides the reader with a brief overview of the literature on future conflict. While this body of literature extends far beyond the portion segmented in this document, the contents are meant to give the reader a fundamental understanding of the subject matter.

An earlier version of this document was part of a background reading package prepared by IDA's JAWP in support of the Joint Experimentation Futures Workshop, November 3–5, 1998. The U.S. Atlantic Command (USACOM) conducted this workshop. Two other reviews by JAWP were included in that package. These documents will be published as IDA documents D-2256 (*An Overview of Recent Futures Studies*) and D-2257 (*Summaries of Recent Futures Wargames*).

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EXECUTIVE SUMMARY

This document is a collection of 10 abstracts on future conflict. The abstracts were derived from recent publications on the character, implication, and consequences of future conflict. Following the collapse of the Soviet Union and the emergence of the United States as the world's only superpower, the growing consensus is that the United States and the U.S. military must begin to scan the horizon for future threats and challenges so that these threats and challenges can either be resolved before crisis or confrontation or vanquished in battle. This collection of abstracts is meant to provide the reader with some perceptions of future conflict.

The noted futurists Alvin and Heidi Toffler, in their book *War and Anti-War*, discuss the emergence of a new "wave" of civilization and its influence on the global strategic environment. The Tofflers believe history can be viewed as a series of waves, with agrarian societies comprising the First Wave, industrial societies fueling the Second Wave, and information-based societies emerging as the Third Wave. Each wave engages in combat in different ways and for different reasons. The Tofflers believe that the terms and definitions currently used to describe and define international relations and conflict are becoming obsolete (i.e., represent Second Wave thinking) and need to be reassessed.

The Transformation of War is the noted historian Martin van Creveld's examination of future conflict. Van Creveld believes that the relevance of Clausewitz's[1] thinking about conflict is waning because future conflicts will typically be low- to medium-intensity conflicts as opposed to high-intensity conflicts. This shift in thinking requires a parallel shift in military warfighting capabilities, which, if not initiated, will result in defeats comparable to the Soviet defeat in Afghanistan and the French and American defeats in Vietnam. Van Creveld believes that the technology and systems being fielded by advanced nations are causing this shift in conflict type, and he warns against overestimating the importance of this technology and these systems in armed conflict.

The Institute for National Strategic Studies at the National Defense University (NDU) released two publications that are reviewed in this volume. The first, *2015: Power and Progress*, examines the future geostrategic environment in terms of the players, the physical environment, the role of politico-military coalitions, and the impact that technology will have on future military operations. The second publication, *Project 2025*, is an earlier study that examines several of the same components of the future geostrategic environment. These

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[1] Carl von Clausewitz, the famous 19th century strategic thinker.

works conclude that the international arena will continue to threaten and challenge American national security.

George and Meredith Friedman's book, *The Future of War: Power, Technology, and American Dominance in the 21ˢᵗ Century*, examines the role that technology—specifically cruise missiles and space-based systems—will play in future conflicts. The Friedmans argue that several weapons systems and platforms in America's arsenal are becoming senile—that is to say, the cost effectiveness of tanks, manned combat aircraft, and aircraft carriers has decreased because of the need for advanced defensive countermeasures that do not add to the systems' lethality. The Friedmans believe that the United States should focus its efforts on developing advanced but inexpensive cruise missiles and a meaningful space warfighting capability.

In *The Nature of Future Conflict*, author Richard Connaughton argues that intrastate conflicts will be the most prevalent form of future warfare. Despite the fact that most of these conflicts will be in the low- to medium-intensity range, Connaughton believes that high-intensity conflict remains the focus of most military planning efforts. Connaughton attributes this approach to the conservative nature of military leaders and the ignorance of civilian leaders. Connaughton also warns the reader against the overreliance on military technology and the need for a coherent and well-defined technological strategy.

The Rosy Future of War is author Philippe Delmas' grim view of the future armed conflict—a future where the world is marred by violent intrastate conflicts. Delmas states that the number of interstate conflicts will diminish because of the rise and recognition of international law, specifically the notion of sovereignty. Delmas further believes that future intrastate conflicts—whether these conflicts are being fought for religious, ethnic, or nationalistic reasons—will be remarkably brutal and largely uncontrolled (i.e., little or no intervention on the part of other states).

In Athena's Camp is a collection of 18 essays edited by John Arquilla and David Ronfeldt. This book covers a wide range of topics, such as netwar, cyberwar, the revolution in military affairs (RMA), information warfare, and transnational threats (e.g., terrorism and organized crime). The editors assert that netwars and cyberwars will characterize future conflicts and that the U.S. military should develop a meaningful capability for waging either of these two forms of warfare.

Breaking the Phalanx: A New Design for Landpower in the 21ˢᵗ Century is author Douglas A. Macgregor's effort to provide some insights into the direction the U.S. Army should take to ensure its continued relevance and battlefield effectiveness in future conflicts. Despite America's overwhelming success in Operation Desert Shield/Desert Storm, Macgregor feels that the United States cannot afford to become militarily complacent. He argues that the United States must consider organizational changes to maximize the effectiveness of technological advances currently being developed and implemented in its force

structure. Failure to do so will prevent the military from realizing the full potential of advanced systems and platforms.

William E. Odom, a former Army general and director of the National Security Agency (NSA), uses *America's Military Revolution: Strategy and Structure after the Cold War* as a forum to discuss his ideas concerning the future strategic environment and the force structure necessary to ensure continued American primacy. While this book does not examine military revolution in the sense one might expect (i.e., an RMA), it does examine possible strategies that America might adopt, Odom's perception of the future strategic environment, the nature of future war, and the implications and consequences for America's armed forces. Odom also discusses coalition management, intelligence, space, and the defense establishment.

War has not become obsolete. While the threats and challenges to American national security might have changed since the Cold War, these threats and challenges do still exist. The fog of uncertainty may obscure the identity of America's future adversaries, but the works abstracted in this document will hopefully provide the reader with a notion of the dangers of the future geostrategic environment.

INTRODUCTION

The United States currently functions in a geopolitical environment characterized by a high degree of strategic uncertainty. Unlike the situation during Cold War era, America cannot identify with a high degree of certainty who our adversaries are and how they will attempt to challenge our political ends. Rather, our present civil and military leaders must develop military forces and operational capabilities relevant to a broad range of missions and contingencies. The first step in developing these forces and capabilities is to examine the environment in which they will act. A clear vision of the future, obscured by possibilities and random events, is replaced by perception and speculation.

This document contains 10 abstracts of books written on future conflict, the future strategic environment, and possible force structures. Some of the works examined, like the Tofflers' *War and Anti-War* or van Creveld's *The Transformation of War*, are frequently cited by academics or those concerned with future conflict. Other works, like Delmas' *The Rosy Future of War*, might be less familiar to the reader but provide a different perspective.

This document should not be perceived as a collection of the definitive works on future conflict (i.e., the seminal works from which all other thought traces its roots) or as an exhaustive examination of this body of literature. Rather, it should be viewed as a living document. As new books are published, they will be read, abstracted, and compiled into additional volumes. Likewise, these abstracts are only one person's analysis of the original work. They are meant to provide the reader with a fundamental understanding of a portion of the literature that has been written about future conflict and should not be considered definitive interpretations of authors' ideas and notions.

The organization of this document reflects the tenuous ties that link the books. The first seven works provide a broad overview of future conflict (e.g., the geostrategic environment, possible combatants, possible causes of conflict, possible types of conflict, and the operational and technological capabilities). The eighth abstract examines the notion of netwar and cyberwar and their relation to a revolution in military affairs (RMA). The ninth and tenth abstracts represent two perceptions of how the U.S. Army might organize and equip itself to prepare for future conflict. The Army-centric feel of this document will be offset in future volumes, which will focus on naval power and air power.

The future holds a multitude of potential threats and challenges. While no person can see through the fog of uncertainty that shrouds the future, this paper is meant to provide the reader with some insights into what the future might hold for the United States and the U.S. military.

War and Anti-War

War and Anti-War
Toffler, Alvin and Heidi
1995
New York, New York: Warner Books
370 pp.

Alvin and Heidi Toffler's *War and Anti-War* examines the possible faces of future conflicts and the sources of these conflicts. In an earlier work, the noted futurist Alvin Toffler advocated considering civilizations as waves—a theory that lies at the heart of the Tofflers' approach to future conflict. The Tofflers assert that most strategic thinking is done in terms and concepts made obsolete by the emergence of the Third Wave of civilization, a civilization based on knowledge as opposed to mass-produced goods (the industrial Second Wave civilizations) or land (the agrarian First Wave civilizations). Future conflicts will have to be viewed not only in terms of the players (i.e., nation-states, ethnic groups) but also in terms of the civilizations they represent. Such a change in perception seems to indicate a change in strategic thinking and planning. However, because the United States, like most other Third Wave nations, has not yet fully completed its transformation from a Second Wave civilization to a Third Wave civilization, the strategic reform process has been met with resistance and skepticism.

The Tofflers provide the reader with some of their insights on the concepts and technologies that seem to be relevant for future conflicts. While they do not examine any particular concept or technology in great depth, they do provide the reader with a fundamental understanding of the potential and the problems that might be associated with these concepts and technologies. The Tofflers also note that while many people perceive the emergence of the Third Wave as an opportunity for peace and prosperity, it also forces strategic thinkers to address a whole new set of threats and challenges.

The Tofflers assert that there are three waves of civilization. The First Wave represents agrarian societies whose existence centers around and depends upon the land. In terms of military power, First Wave societies possess rudimentary capabilities supported by non-standardized weapons and doctrine. The Second Wave is rooted in the Industrial Revolution and the ability to mass produce goods and services for its citizens. These societies grew out of agricultural societies through the development and use of systems (e.g., mass education, mass production) to accomplish their economic and military goals. Their military systems are usually based on mass production and mass formation, and their military goals and

objectives are expanded to embrace the society that supports their adversary's war machine. The Third Wave, born out of the Information Age, is based on the acquisition, analysis, and distribution of knowledge. The shift away from land and industry is reflected in this wave's approach to warfare: the battlefield extends beyond the front lines of First and Second Wave warfare to encompass the enemy's knowledge base (i.e., command and control (C^2) nodes, information infrastructure) [pp. 20–87].

This trisection of humanity[2] presents the strategic thinker with several problems, the first of which is that the relative youth of the Third Wave has not yet allowed for the development of a taxonomy with which future conflict can be discussed. Concepts and terms currently being used in the discussion of both war and peace were "...conceived in Cold War categories and, worse yet, frozen in the mindset of the smokestack era." The Tofflers believe that future conflicts will either be within the confines of a particular wave, between two different waves, or involving multiple waves. An example of the first type of conflict is the Pacific theater during World War II. Both the United States and Japan were industrial societies with similar technological capabilities. The other two types of conflict, although seemingly similar, represent two very different types of conflict. An example of conflict between two different waves is the colonial wars that were so common until the 20th century. Industrial societies, in a quest to secure natural resources and wealth, used their technology to subjugate and exploit First Wave societies.[3] Multi-wave conflict, however, is meant to indicate conflicts in which at least one of the combatants uses doctrine and technology characteristics of two different waves. The Persian Gulf War, with the use of "smart" munitions and cruise missiles in conjunction with massed armor formations, is a good example of this type of conflict. If a nation is to be prepared for future conflict, it must develop capabilities to address each one of these three different types of conflict [pp. 94–104].

As mentioned previously, the Third Wave is the youngest of all the waves of civilization. As such, the civilizations that are typically considered Third Wave societies might be more aptly described as a society in transition from the Second Wave to the Third Wave. This transition affects all segments of the society, including the military. As the Tofflers noted,

> A military revolution, in the fullest sense, occurs only when a new civilization arises to challenge the old, when an entire society transforms itself, forcing its armed services to change at every level simultaneously—from technology and culture to organization, strategy, tactics, training, doctrine, and logistics [p. 34].

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[2] The division of the world's population into three different Waves.

[3] Such a conflict can also occur internally when the representative of the different waves compete for political power within a particular nation. The Tofflers use the American Civil War, where the largely industrial North fought the largely agrarian South, as an example of this type of interwave conflict [pp. 21, 42].

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Transition, or change, is difficult, not only for individuals but also for organizations and societies. The Tofflers feel that this is particularly true when one is talking about military institutions. They wrote:

> Changing any military's doctrine, however, is like trying to stop a tank...by throwing marshmallows at it. The military, like any huge modern bureaucracy, resists innovation—especially if the change implies the downgrading of certain units and the need to learn new skills and to transcend service rivalries [pp. 57–58].

The U.S. military must change to make itself more capable of addressing the threats it will face in the future—however unpleasant this future might be.

The Tofflers proceed to provide the reader with a collection of their thoughts and the thoughts of other futurists and strategists on the capabilities and technologies that will be needed for and in future conflicts. Most notable among these capabilities and technologies are the need for special-operations-capable forces, the ability to dominate and exploit space, the ability to use and develop advanced robotic technologies, and the possession of non-lethal technologies and the development of an appropriate doctrine for their employment [pp. 105–107].

- Special-operations-capable forces will be necessary because of the shift in relative power from the nation-state to the non-state actor. Special forces allow a more flexible response (i.e., from small party reconnaissance patrols to larger operations) to a wide range of contingencies [low-intensity conflict to operations other than war (OOTW)].

- Space is becoming an increasingly important strategic environment, not only because of the assets placed there but also because of the assets that we could develop and deploy there (e.g., space-based, directed-energy weapons).

- The military use and application of robotics on the battlefield of the future represent an opportunity to decrease the number of combatants placed in harm's way. However, the Tofflers note that the military's use of robots is highly controversial and will need to overcome several moral and ethical objections before it can be implemented on a large scale.

- Non-lethal technologies (e.g., acoustic weapons, adhesive agents, lubricants) represent an opportunity for a nation to accomplish its political ends without the loss of life associated with earlier waves of civilization.

Two other aspects of future conflict—already important topics in politico-military circles—are information warfare and intelligence. Knowledge and information, the cornerstones of the Third Wave, will become increasingly important commodities. Their importance within and without the military will require a closer relationship between the civil and military segments of a Third Wave society. The Tofflers wrote:

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The ultimate strength of a Third Wave military rests on the strength of the civil order it serves, which, in turn, increasingly depends on the society's own knowledge strategy. That means, for better or worse, that the soldier and the civilian are informationally intertwined. How well the civilian world—business, government, non-profit associations—acquires, processes, distributes, and protects its knowledge assets deeply affects how well the military will carry out its tasks [p. 178].

Third Wave societies will not only be able to use information and knowledge to accomplish their political and economic ends but will be affected by them through the media's (or another party's) manipulation of them. The easy access to information in Third Wave societies will affect the public's perception of and reaction to any and all world events [pp. 166–204].

The Third Wave, while commonly associated with peace and prosperity, is going to present strategic thinkers and global leaders with a whole new set of problems. Information, being the common denominator between Third Wave societies, can act as a destabilizing force. The Tofflers noted that

What should disturb those of us concerned with guarding peace is not raw military power as such, but today's sudden, erratic tilts and changes in relative strengths [p. 214].

These tilts are caused by the very exchange of information that allowed the Third Wave to come into existence. The proliferation of nuclear weapons, the exploitation of dual-use technologies, and the migration of skilled workers from Third Wave societies to First or Second Wave societies (e.g., a Russian nuclear physicist being employed by a state hoping to acquire its first nuclear weapon) represent serious threats to global stability. Existing, Second Wave political organizations, like the United Nations (UN), may be ill-prepared to deal with these types of threats to international peace and stability. The Tofflers wrote the following about the UN:

Much foolishness has been written about a new, stronger United Nations. Unless it is dramatically restructured in ways not yet even under discussion, the UN may well play a less effective and smaller, not larger, role in world affairs in the decades to come. This is because the UN remains what it originally was, a club of nation-states. Yet the flow of world events in the years ahead will be heavily influenced by *non-national* [emphasis in original] players like global business, crossborder political movements like Greenpeace, religious movements like Islam, and burgeoning pan-ethnic groups who wish to reorganize the world along ethnic lines....International organizations unable to incorporate, co-opt, enfeeble, or destroy the new non-national sources of power will crumble into irrelevance [p. 250].

The Tofflers' book, *War and Anti-War*, is one of the seminal works on future conflict. It provides a broad overview of the implications and consequences of future conflict. While no particular military capability is examined closely, the Tofflers provide a view of the character of future conflict.

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The Transformation of War
van Creveld, Martin
1991
New York, New York: The Free Press
254 pp.

In *The Transformation of War*, Martin van Creveld, a well-known military historian, asserts that low-intensity conflict will emerge as the dominant form of warfare in the next century. Such a shift from conventional warfare to unconventional warfare will have serious repercussions, not only for the military institutions that will be called upon to fight such conflicts but also for the industries that support the military. Through the use of historical examples, van Creveld demonstrates that future conflicts will be brutal and akin to the conflicts that we would sooner forget than relive.

Van Creveld believes that the power and position of the state is in decline. The decline of state, when coupled with the emergence of non-state actors (e.g., religious sects, ethnic groups) and the decrease in global stability, signals a change in the character of warfare. He feels that the non-state actors will cause a shift from conventional warfare (which typically occurs between two nation-states) to unconventional war (which typically occurs between a nation-state and non-state actor).[4] According to van Creveld, the principal characteristics of low-intensity conflicts are that they tend to occur in less-developed, or undeveloped, areas of the world; they rarely involve regular armies on both sides; and "...most LICs [low-intensity conflicts] do not rely primarily on the high-technology collective weapons that are the pride and joy of any modern armed force" [pp. 1–20].

This shift away from conventional warfare to low-intensity conflicts will have several significant consequences for the military institutions that must fight them. Currently, most modern military forces train and equip themselves for conventional mid- to high-intensity interstate conflicts. Van Creveld believes that these forces are "...simply irrelevant as an instrument for extending or defending political interests over most of the globe" [p. 27]. Historically speaking, conventional forces have faired poorly against unconventional forces

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[4] It seems as though unconventional war and low-intensity conflict are used almost interchangeably, not only by van Creveld but also by other military historians and strategic thinkers. While the use of and the differences between the two words might be debatable, I have stuck with the convention of using them as synonyms because of the lack of an authoritative source.

in low-intensity conflicts (e.g., the Soviet Union in Afghanistan, France and the United States in Vietnam).

The ongoing shift from conventional warfare to unconventional warfare makes the ability to conduct unconventional operations a critical component of the future success of existing armed forces. According to van Creveld, one reason modern conventional forces are unsuitable for participating in low-intensity conflict is their

> ...need to look after the technology on which the forces depend; between maintenance and logistics and sheer administration this ensures that the number of troops in their 'tails' will be far too large, and the number in the fighting 'teeth' far too small [p. 29].[5]

Van Creveld is not anti-technology. Rather than technology being the problem, the inflexibility and lack of tactical mobility that plagues many modern military organizations are the problems. He further defines the problem through the use of historical examples:

> In the jungles of Vietnam, the mountains of Afghanistan, and the closed, heavily populated, Lebanese countryside, forces on foot were often as mobile tactically as their mechanized opponents. They were also capable of making much better use of the terrain, with the result that it was always the conventional forces who were pinned down or blown up. The nimble guerrillas got away, usually suffering heavy casualties only on those occasions when they chose to stand and fight. Attacked by swarms of gnats, all the conventional forces could do was flounder about in helpless fury, destroying their environment and themselves [p. 30].

Oddly enough, the very nature of the modern conventional forces are forcing non-state actors to adopt the unconventional style of low-intensity conflict. Van Creveld writes:

> So expensive, fast, indiscriminate, big, unmaneuverable, and powerful have modern weapons become that they are steadily pushing contemporary war under the carpet, as it were; that is, into environments where those weapons do not work, and where men can therefore fight to their hearts' contents [p. 32].

Another reason that modern militaries are typically unable to perform well in unconventional conflicts is because the foundation for their strategic thinking is based on the writings of Carl von Clausewitz, the famous 19th century strategic thinker. According to van Creveld, Clausewitz's popularity among educated military thinkers makes confronting and defeating non-Clausewitzian leaders difficult. The basis for van Creveld's argument lies in the fact that Clausewitz wrote during a time when war was waged between states—not between states and non-state actors. Despite the shift away from interstate conventional warfare to intrastate low-intensity conflict, this continued adherence to Clausewitz limits the breadth and depth of strategic thinking among his adherents. Van Creveld notes:

> If any part of our intellectual baggage deserves to be thrown overboard, surely it is not the historical record but the Clausewitzian definition of war that prevents us from coming to grips with [low-intensity conflict] [pp. 57–58].

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[5] "Tail" and "teeth" have come to represent the support and combat elements of a military force.

Another consequence of the shift to low-intensity conflict is that significant changes in the future might occur not only in the rules of engagement (ROE) but in the identification and treatment of non-combatants. As the conventions that govern or guide the actions taken between two combatants lose their power, the nature of war will change to reflect the diminished importance of these guidelines. According to van Creveld, these changes may take the form of political assassination or the use of weapons of mass destruction (WMD), specifically biological and chemical agents. Concerning assassination, van Creveld notes:

> With political and personal factors becoming intermingled in the new forms of organization, neither the leaders' families nor their private property can expect to enjoy immunity. Instead they will be subject to attack, or the threat of attack, as a means of bringing pressure to bear [pp. 200–201].

As for the threats posed by WMD, he feels that

> Future low-intensity conflict is also likely to make increased use of weapons that are prohibited today, such as gas, the reason being that they are cheap, easy to manufacture, and well suited for use in closed, urban spaces [p. 204].

As political assassination and the use of WMD become more acceptable, the safety of the non-combatants becomes more precarious. This assertion is based upon the treatment of civilians in the ancient world, when the state was not as common as the city-state or ethnic group. Future war, according to van Creveld, may be more akin to tribal warfare, or the wars waged by ancient city-states, than the military campaigns of the 18th, 19th, and early 20th centuries. The consequences for non-combatants are grim. Van Creveld notes

> ...war will become a much more direct experience for most civilians, even to the point where the term itself may be abolished, or its meaning altered. War will affect people of all ages and both sexes. They will be affected not just accidentally or incidentally or anonymously from afar, as in the case of strategic bombing, but as immediate participants, targets, and victims. Practices that for three centuries have been considered uncivilized, such as capturing citizens and even entire communities for ransom, are almost certain to make a comeback [p. 203].

As mentioned earlier, the technologies employed by the military and the industries that produce those technologies are going to have to change to be able to counter future low-intensity threats effectively. Van Creveld feels that the military-industrial complex, as it exists today, is outdated and poorly prepared to face the threats posed by low-intensity conflicts. He noted:

> Judging by the experience of the last two decades, the visions of the long-range, computerized, high-tech warfare so dear to the military-industrial complex will never come to pass. Armed conflict will be waged by men on earth, not robots in space. It will have more in common with the struggles of primitive tribes than with large scale conventional war... [p. 212].

Therefore, the military-industrial complex must change to meet the impending threat and not continue to plan and build for the wars that were fought when the nation-state was the fundamental and universal building block of the geopolitical environment. He believes that

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... major military-technical research and development as we have known it since the industrial revolution will grind to a halt. Even today...the research and development process is in large part an empty game whose main purpose is to provide employment and serve as a welfare system for engineers [p. 210].

To meet the threats of the future, industry must make a significant change, not only in what they design for military application but also in how they manufacture their products. Van Creveld believes that industry must "...move away from today's large, expensive, powerful machines toward small, cheap gadgets capable of being manufactured in large numbers and used almost everywhere" [p. 210].

The Transformation of War provides insight into what the face of conflict might be like if the change from conventional war to low-intensity conflict continues. It also points out that most modern militaries, as they are presently structured and equipped, are inadequately prepared to deal with this real and emerging threat. Worse still, several examples that demonstrate their ineffectiveness are—by and large—not used as models for future conflict. While van Creveld does not identify the doctrinal and technological reforms that might be useful, he does feel that the current processes for identifying and producing innovative technologies are fundamentally flawed and need to change to meet the threats of tomorrow.

2015: Power and Progress

2015: Power and Progress is a publication of the National Defense University (NDU). The work, edited by Patrick M. Cronin, a Senior Fellow at the Institute for National Strategic Studies, examines four aspects of the future:

- The geopolitical/geostrategic environment

- The natural environment

- Political and military coalitions

- The role of technology in future military conflict.

The book is useful because it provides the reader with a broad overview of the future environment. It contains five chapters—one for each of the previously mentioned aspects of the future and a final chapter that summarizes the work.

The first chapter contains an assessment of the geopolitical/geostrategic environment in which the United States might have to operate. Author Brian R. Sullivan, a social science analyst at NDU, first considers the future in terms of the international system that might exist and then in terms of the states that might rise to be America's competitors. Sullivan believes that the international system in the 2015 time frame will be akin to the international system that existed in Europe between 1648 and 1945—a system in which states engaged in constant struggle with one another to gain wealth and prestige. In 2015, such a system would not be confined to a single continent; rather, it will be expanded to encompass the entire globe. In this global system, great powers shall emerge. The United States will continue to be a great power. The identity of other great powers is not so certain. Sullivan identifies five potential competitors: a European confederation, Russia, India, the People's Republic of China, and Japan. In each case, Sullivan examines possible directions that each state (or collection of states) might take and the indicators that might provide clues to the direction in which they are heading [pp. 3–51].

The second chapter, written by Patrick L. Clawson, a Senior Fellow at the Institute for National Strategic Studies, examines the natural environment (e.g., population, natural

resources) that might exist in the 2015 time frame. Clawson notes that while the global population growth rate is slowing, the population of the "poverty belt" will, in fact, rise. Given the rise in the number of military operations other than war (MOOTW), this fact is particularly relevant to military planners. Another aspect of the environment relevant to military planners is the availability and control of natural resources. The Persian Gulf War is a good example of a conflict that resulted over the availability and control of natural resources. Likewise, in the future, military planners will also have to consider transborder resources as a possible source of conflict (e.g., State A, which is upstream from State B, places a dam on a river that runs through and is important to the agricultural well-being of, State B). As resources become more scarce or the control of resources becomes consolidated in a few nations, the possibility that they will be a source of conflict increases [pp. 55–81].

Stephen M. Walt, a professor at the University of Chicago, wrote the third chapter, which examines the necessity and implications of politico-military coalitions. Walt notes that the nature of coalitions has changed since the end of the Cold War. During the Cold War, changes in the composition were the result of internal factors (e.g., a change in political regimes). However, the coalitions of the post-Cold War era will likely be influenced by external forces (e.g., the nature of the threat, the identity of the enemy). Threat is comprised of four factors: aggregate power, geographic proximity, offensive capabilities, and aggressive intentions. While states may form coalitions to balance the threat (i.e., develop a capability equal to the threat posed by another state or combination of states), others may join the coalition to gain recognition or prestige, wealth or influence ("bandwagoning behavior"). Walt also acknowledges that states may join coalitions for several other reasons (e.g., to realize "ideological solidarity," to exert influence over other member states, to decrease the overall chances of conflict through the creation of a large or powerful coalition). In the future, Walt believes that coalitions will need to be formed quickly and efficiently to deter conflict. The main obstacles to future politico-military coalitions will be conflicting interests (i.e., what are the goals of the coalition?), competing prescriptions (i.e., what is the appropriate response?), the implications inherent to collective action (i.e., how much risk should each member state take and why should they take it?), and, finally, the degree of uncertainty (i.e., what is the threat?). Clawson concludes his chapter with an examination of the structure of coalitions and possible future coalitions [pp. 85–114].

The fourth chapter, "Technology and Warfare," by Martin C. Libicki, a Senior Fellow at the Institute for National Strategic Studies, examines not only the role of technology in future conflicts but also some of the technologies that seem to be particularly relevant to the U.S. military's success in future conflicts. Libicki observes that the military is being increasingly influenced by advanced technologies. The question is whether this military technical revolution (MTR) will result in a revolution in military affairs (RMA). Libicki is unsure. The United States possesses the technology necessary for an RMA but lacks the strategic challenge that Libicki feels necessary to stimulate one. Libicki feels that mid-term technological forecasting is complicated by technological uncertainty and the proliferation of advanced technologies. Libicki poses two questions for examining the role of technology in

2015: What differences will exist between today's military and the military forces of tomorrow? What advantages will the United States have over potential adversaries? Libicki then proceeds to examine the promises and possibilities of systems technologies (i.e., sensors and how they are integrated) and stealth technologies. The chapter concludes with some thoughts on the technologies necessary for future conflict. The capabilities identified by Libicki as being necessary for success in future conflict include the ability to deploy rapidly to military theaters of operation, counter command and control (C^2) warfare, advanced precision-guided munitions, and advanced sensor systems [pp. 117–146].

2015: Power and Progress provides the reader with an overview of the implications and consequences of conflict in the early 21st century. The fact that the book examines aspects of the future not commonly associated with military conflict (e.g., population studies, natural resources) forces the reader to examine the bigger picture and consider causes of conflict not generally considered in other works.

Project 2025

Project 2025 represents an effort to identify and examine the trends that will affect the U.S military in the 21st century. The project was envisioned by the Vice Chairman of the Joint Chiefs of Staff and began with the development of 13 possible futures by 3 independent analytic organizations and the Defense Intelligence Agency (DIA). The character of the futures range from a "green" future where the United States sets aside its military might and focuses on repairing the environment to a future where the West is engaged in a brutal holy war with a pan-Islamic block of nations. The report examined in this review is the product of Phase II of the project, which selected the most probable futures (or the most probable aspects thereof) and subjected them to closer scrutiny. The report specifically examines the geostrategic environment, the role of technology in future military operations, and the types of missions that might characterize future military operations.

The future geostrategic environment is examined in the first three chapters of the report. The chapters specifically examine the "Developing World," the Western Hemisphere, and the possible emergence of a peer competitor. The authors note that the developing areas of the world will continue to be a challenge for the United States for three reasons:

- Their weak political and social infrastructure will contribute to local or regional instability.

- The proliferation of high-technology weapons will enable some developing nations to threaten American allies and interests.

- Developing nations may form a coalition against the United States.

Concerning the Western Hemisphere, the authors note that, historically, American interests in Latin America have been "episodic." While this approach might have been possible in the past, it will not be an option in the future. The reason given for change is demographics. As the Hispanic population in the United States grows, our domestic interest in Latin American and South American nations will likely increase. Finally, in preparing to meet the challenges presented by a peer competitor, the authors discuss both the approaches to strategic

planning[6] and possible peer competitors (e.g., Japan, Russia, a Eurasian confederation) [pp. 4–35].

The fourth, sixth, and seventh chapters consider the influence of technology on future battlefields and its impact of American national security. The fourth chapter examines some of the technologies that may play a role in future conflict. The authors examine technologies, such as precision-guided munitions and stealthy technologies; sensors, robotics, and artificial intelligence; space-based systems; non-lethal technologies; and communications and psychological operations. The authors also discuss the role of technology on the environment and how adversaries might attempt to take advantage of this technology (e.g., changing weather patterns, making genetically engineered weapons that attack specific targets, or attacking ecosystems) [pp. 36–44]. In the sixth chapter, the authors examine how technology will impact military planning. Specifically, they examine how missions [e.g., sea lift and sea control, air superiority, space exploitation, deep strike, creation or maintenance of a cordon sanitaire, information warfare, and command and control (C^2)] will all be affected by technology advances [pp. 48–54]. Finally, in the seventh chapter, the authors examine the implications for research, development, and procurement. They note that the United States might need to implement a hedging strategy[7] to mitigate the effects of strategic uncertainty [pp. 55–60].

The third aspect of the future examined in this report is the missions that the U.S. military might be called upon to perform in the early 21st century. The authors note that the terminology used during the Cold War is becoming obsolete and that the U.S. military will be called upon to perform seven types of missions in the future:

- **Core security.** This mission encompasses the defense of the American homeland against assault with nuclear, biological, or chemical weapons delivered by ballistic missiles.

- **Reassurance.** Reassurance missions will be conducted so that our allies will not perceive the need to develop a significant military capability. These missions would lessen the odds of a military superpower emerging from the nations now allied to the United States.

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[6] "In the decades between the two world wars, we could not be sure what major power might emerge as our enemies. However, U.S. military planners knew that war was possible and that the United States might find itself confronting an opponent as militarily sophisticated as itself....The legacy of [this] U.S. planning...can be summarized as follows: 1) There can be no single scenario for conflict. In fact, there cannot even be an identifiable opponent. 2) Planners cannot look only at current or easily foreseeable capabilities. Instead they must look at a range of potential capabilities and possible, even if unformed, intentions. 3) Planners must think about new kinds of competition. They must look beyond concepts formed by experiences in past conflicts and consider all eventualities" [p. 26].

[7] The hedging strategy envisioned by the authors of the report is comprised of five components: prototyping, simulation, reconstitution, core competencies, and cycle-time reduction [pp. 57–58].

- **Leverage.** Leverage entails influencing events without deploying a significant amount of military resources to the region. Examples of leverage missions range from supplying intelligence to our allies to achieving and maintaining air superiority in support of our allies.

- **Conflict containment.** This type of mission would seek to not only prevent a conflict from escalating but also limit the destabilizing effects of local conflict from affecting the surrounding region.

- **Punitive intrusion.** Punitive intrusion can either be an attempt to dissuade a potential aggressor through a show of force or to punish an aggressor for its actions. The authors of the report believe that this type of mission will involve precision strikes against high-value targets and will be of short duration.

- **Defending or liberating territory.** This mission involves the use of force to achieve "limited" objectives. The authors refer to Desert Shield and Desert Storm as models of this type of mission.

- **Humanitarian support.** Humanitarian support will involve the use of military forces to assist in the conduct of humanitarian relief efforts. This category of mission is broad and could require several different capabilities [pp. 45–47].

Project 2025 represents an effort to identify not only the threats and challenges of the 21st century, but also the technologies and capabilities that might enable the U.S. military to enjoy continued battlefield success. Technology will play an important role as both a challenge and enabler. To maximize effectiveness, the authors feel that the United States needs to consider a new acquisition strategy—one that is more suitable for the existing and anticipated geostrategic environment. The Cold War is over, and the defense community must abandon its Cold War mindset.

The Future of War

The Future of War: Power, Technology, and American Dominance in the 21st Century
Friedman, George and Meredith Friedman
1996
New York, New York: Crown Publishers
464 pp.

George and Meredith Friedman's book, *The Future of War: Power, Technology, and American Dominance in the 21st Century*, provides the reader with an in-depth examination of the U.S. military and the technologies and capabilities they believe will be necessary for success in future conflicts. They approach the subject of future conflict by first establishing that military conflict is not—nor shall it become—obsolete. Having made that argument, the authors proceed to examine the senility of many of the existing American weapon systems and platforms (i.e., the diminished operational and strategic effectiveness of these systems), the demonstrated capability and unrealized potential of long-range standoff weapons systems (specifically cruise missiles), and the importance of space to future American strategic policy. The Friedman's used examples and data from earlier American conflicts (ranging from the Second World War through the Persian Gulf War) to support many of their arguments. This book is an interesting and thorough work and represents a serious effort at thinking about future conflicts.

The collapse of the Soviet Union seemed to cause many Americans to believe that the likelihood of the United States becoming involved in a significant military conflict diminished almost overnight. The Friedmans argue that not only is such a perception naïve, but it is fundamentally flawed. The flaw lies in the fact that the increased interdependence that characterizes the existing international system actually increases the likelihood of conflict. The Friedmans wrote:

> Conflicts arise from friction, particularly friction involving the fundamental interests of different nations. The less interdependence there is, the fewer areas of serious friction. The more interdependence there is, the greater the areas of friction, and, therefore, the greater the potential for conflict [p. 7].

If this perception is in fact true, then the United States, if it desires to maintain its primacy in the international system and its preeminence on the battlefield, must not only examine the relevance of its existing military forces but must also look ahead to the forces and capabilities that will be necessary for future wars.

The Friedmans feel that America will be involved in three types of conflict. The first type would be interventions other than war, which would encompass humanitarian and peacekeeping operations. The second type would be small-scale interventions with the end goal of stabilizing a region or deterring further conflict. The final type would be a large-scale intervention to compel an adversary to take a certain course of action. The Friedmans took care to note that while the last type of conflict is unlikely, it should not be neglected. They wrote:

> American planners have tended to downplay the likelihood of [middle- to high-intensity conflicts] in the near future, focusing instead on low-intensity confrontations and peacekeeping operations outside of Europe. This is a fundamental mistake....[L]arge scale conflicts are the fundamental mission of the American armed forces. All other actions are peripheral [p. 107].

In their examination of America's military, the Friedmans found that many of the weapon systems and platforms are showing signs that they are becoming increasingly senile. A weapon becomes senile when "...it continues to function...but its effectiveness declines, and its cost soars until it becomes a burden" [p. 26]. This senility is dangerous because it is often difficult to diagnose. The system or platform is typically viewed as refined and capable until it is defeated soundly on the battlefield, usually by a system that seems relatively unsophisticated in comparison. As examples of weapon system senility, the Friedmans cited the aircraft carrier, the main battle tank, and manned combat aircraft. Each of these systems has seen huge increases in cost with only incremental increases in capability. The reasons these weapon systems are being pushed toward senility is the development and proliferation of low-cost, highly capable missile technologies (e.g., cruise missiles, anti-tank missiles, anti-air missiles).

The Friedmans believe that future combat power lies in the development of long-range, standoff weapon systems, such as cruise missiles. The use of cruise missiles in the Persian Gulf War demonstrated their potential as a capable and efficient method of striking at operational and strategic targets with great precision. While cruise missile technology is still relatively young, the Friedmans feel that it will have an increasingly important role in all future conflicts. However, before cruise missiles can achieve their potential, the Friedmans believe there must be several improvements in the technology, including:

- An increase in range to about 5,000 miles

- The ability to deploy intelligent sub-munitions

- A decrease in cost/an increase in cost-effectiveness

- The ability to detect and avoid threats

- The ability to accept new commands while in flight

- The ability to perform damage assessment to targets and reroute itself as necessary

- The ability to attain speeds of Mach 20 [!].

The Friedmans note that as cruise missile technology improves and diffuses throughout the international environment, the control of space will become increasingly important for the detection, destruction, direction, and command of cruise missiles.

As the collection, analysis, dissemination, and control of information becomes more important, the strategic significance of space will also become more important. The Friedmans believe that space is significant to American strategic policy because of its importance in the collection and dissemination of information. As the United States places more assets—civil or military—in space or develops weapon systems and platforms that rely on systems deployed in space for guidance or instruction, it will be forced to develop and deploy weapons and weapons systems capable of ensuring its access and control of space.

While the vastness of space may seem to be an overwhelming obstacle in the development and deployment of capabilities designed to ensure our access to and control of it, the Friedmans argue that this is not necessarily the case. They noted that

> A space-control strategy...does not require that control be exercised over all 900 trillion cubic miles of space, any more than sea control requires domination of every inch of ocean surface [p. 350].

The analogy to the ocean lead the Friedmans to note that the development of spaceborne military capabilities would probably be more closely related to naval power than to air power. The basis for this argument is that spaceborne forces will have to deployed for extended periods of time, a space fleet would bear a closer resemblance to a naval fleet than an air force, the dynamics of space (e.g., gravity, solar flares) are more akin to the forces at work in the ocean than those in the atmosphere, and spaceborne forces, like naval forces, would operate far from bases or headquarters.

Warfare has not become obsolete following the collapse of the Soviet Union; rather, it has, with the introduction, success, and proliferation of missile technologies, undergone a serious transformation. The Friedmans feel that U.S. forces, to remain relevant in light of this transformation, must also be willing to change. The weapon systems and platforms that have been their hallmarks are becomingly increasingly senile. Continued loyalty to such systems and platforms risks military defeat. According to the Friedmans, success in future conflicts demands the further development of cruise missile and long-range standoff weapon technology and the examination and exploitation of space as the ultimate in strategic high ground. *The Future of War: Power, Technology, and American Dominance in the 21st Century* provides the reader with an interesting and compelling argument for these assertions and, perhaps, an insight into the future of war.

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The Nature of Future Conflict

The Nature of Future Conflict
Connaughton, Richard
1995
London: Leo Cooper
239 pp.

The Nature of Future Conflict focuses primarily on the role of the United Nations (UN) and UN-sponsored coalitions as the enforcers of Chapters VI and VII of the UN Charter[8] in future armed conflicts. The author, Richard Connaughton, an Honorary Research Fellow with the Centre for Defence and International Security Studies (CDISS), believes that intrastate conflict will be the most prevalent form of armed conflict in the future. The nature of these conflicts may require UN intervention in the form of either peace-keeping, peace-making, or peace-enforcement operations. The author uses several historical examples (e.g., Bosnia, Somalia, and the Gulf War) to illustrate and support his views. While this book focuses on the UN and coalition warfare, it provides the reader with some perceptions and characteristics of future conflicts that may have universal application.

Connaughton believes that low-intensity, intrastate warfare will become the most common form of future warfare. He also feels that this form of warfare requires the development and implementation of doctrine and technology that is different from the doctrine and technology that would be used in high-intensity conflicts and mid-intensity conflicts.[9] These intrastate conflicts will be complicated by the fact that the some of the players will be non-state actors, a factor which makes these conflicts difficult to examine in Clausewitzian terms [pp. 32–38].

Despite the near-universal recognition among thinkers like van Creveld and the Tofflers of the ongoing shift from high-intensity conflicts and medium intensity conflicts (which dominated past strategic thinking and planning) to low-intensity conflicts, Connaughton feels that contemporary military institutions are particularly unwilling to acknowledge and react to this change. He wrote:

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[8] Chapter VI of the U.N. Charter, the Pacific Settlement of disputes, has come to embrace U.N.-sponsored peacekeeping operations, which were not specifically addressed in the Charter. Chapter VII is the enforcement portion of the U.N. Charter [p. 54].

[9] Although the doctrine and technologies used in MICs may have more relevance, Connaughton believes that it "...remains self-evident that MIC forces and their equipment can be employed on LIC tasks, but LIC forces and equipment may not always be satisfactorily employed on MIC tasks" [p. 41].

General Regional War[10] is likely to remain the determinant upon which resources will be allocated, despite the prospect of such a war appearing distinctly unlikely....Those peace-associated operations related to Civil War seem unlikely to become a major resource determinant, even though it is within this band of operations that land, sea and air forces will principally be employed in the future.

Connaughton cites three reasons for the rigidity inherent in most military institutions:

- The general conservatism of these military institutions

- The relatively slow pace of military procurement

- The belief that military institutions must be capable of conducting military operations at any and all levels of conflict. Refocusing on low-intensity conflict could possibly result in unacceptable degradation in the ability to carry out operations at other levels of conflict.

This problem is compounded by a change in the way politicians view defense. Connaughton wrote:

Modern strategies are increasingly being designed not around risk or conflict assessment, but rather upon what Treasuries are willing to give Defence. The availability of advanced technology to compensate for downsizing is a frequently cited political explanation, yet technology cannot be used to best effect in low-intensity environments, and funds allocated for research and development have been universally reduced.

Connaughton believes that this rigidity could have potentially serious consequences because "[s]uccessful armies tend to assume that the next war will be like the last one, while defeated armies return to the drawing board." Connaughton believes that some military institutions have attempted to change their approach to warfare,[11] but the main obstacle in realizing change—the civilian government—lies outside of their control [pp. 39–48].

Connaughton identifies what he believes to be two major problems that exist in modern Western democratic governments: a lack of true leadership and the limited availability of resources. According to Connaughton, the problem with modern politicians is that they are hesitant to lead. This can have severe consequences not only in terms of the willingness to act but in the ability to envision and support military reform in times of peace. He notes:

Grey and bland national leaders are a symbol of the deterioration of society and the state. The absence of effective leadership is synonymous with modern, Western, liberal democracy. As far as collective security is concerned, this implies that leaders will dodge the making of decisions which would bring them personally face to face with the bloody implications of those decisions.

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[10] One of the five levels of conflict. The other four are general global conflict, limited regional war, civil war, or "domestic confrontation of lawlessness" [p. 38].

[11] "The old Threat-Based strategy has made way for a Capability-Based concept of operations which embodies a flexible framework implying the end of linear operations on the battlefield. Ultimately, the future vision of battle sees a Domination-Based strategy, confirming the end of formation and national boundaries....Battles will be fought simultaneously close and deep" [p.48].

Part of the problem lies in the fact that modern politicians allow themselves to be controlled by public opinion polls. Connaughton noted that the dangers inherent to this type of leadership may vary depending on a single factor: the public being polled. He wrote:

> A disturbing phenomenon of the 1990s and one which will influence participation in future conflict is that leadership is seemingly being superseded by followership. There is a modern tendency for politicians to base their decision-making upon attitudes revealed in public opinion polls. That is all very well if the public is alert and informed. Much of America's middle class, however, does not take its news from *The New York Times* or *The Washington Post* but rather through worryingly simplistic news messages squeezed between television commercials....If stands or positions are taken on such shaky foundations, then this phenomenon represents a real crisis of democracy.

The scarcity of true leaders makes change and meaningful reform difficult. Connaughton feels this problem is compounded by a second factor: the limited availability of financial resources [pp. 104–141].

Financial resources become important in the development and acquisition of technological assets. The importance of technology is indisputable, but Connaughton notes that

> There has always been an excess of technology in relation to money, with the implicit capacity for wastage and extravagance. Less money means even less technology, hence the importance of getting it right. The quest in the future has to be for fewer systems but the right systems.

The key to developing the right systems lies in a thorough understanding of the future environment in which the systems will be employed. Connaughton writes:

> In order to design a Technological Strategy, it is of immense importance to have a clear understanding, not only of the nature of future conflict, but also of its sub-divisions and the likely frequency with which each sub-division is perceived as having to be addressed.

Having identified and contemplated possible future environments and the advanced technologies best suited for them, an appropriate and effective doctrine can be developed so that the full potential of the technology might be achieved. Connaughton feels that this is rarely the case with modern technological innovations. He notes that

> Today the situation has been exacerbated by modern technological development outstripping the more laborious and time-consuming development of theory and practice. Doctrine is inextricably linked to organization and training, yet the influence technological advance is having upon organizations is reflected in a mere tinkering with beloved and long-established structures.

That technology will play an important role in the future is without question. However, Connaughton believes that technological advances with military application should occur after a thorough assessment of future conflicts (both the type of conflict and the environment in which it will occur) and should be supported by appropriate doctrine and training [pp. 147–155].

The Nature of Future Conflict offers several insights into the conflicts of the future and the complications associated with them. While the author, Richard Connaughton, spent a fair amount of time thinking about the implications for bodies like the UN, some of his insights have universal application.

The Rosy Future of War

The Rosy Future of War
Delmas, Philippe [translated by Atamian, C., and C. Hewitt]
1995
New York, New York: The Free Press
236 pp.

In the book, *The Rosy Future of War*, author Philippe Delmas, an official with the French ministry of finance, examines the causes and types of future conflict. In his opinion, two types of conflict exist: conflicts of sovereignty and conflicts of legitimacy. The former typically represents interstate conflicts while the latter are typically intrastate conflicts (e.g., insurgent movements). In addition to identifying the types of conflicts, Delmas also examines their causes. The final aspect of future conflict that Delmas discusses is the influence that politico-economic alliances, such as the North Atlantic Treaty Organization (NATO) and the European Union (EU), have on the member states and on the aspiring member states.

According to Delmas, conflicts of sovereignty are the "...traditional wars of ambition and conquest. They reflect the desire of the State to acquire for itself, in whole or in part, the attributes of the sovereignty of another State" [p.7]. Conflicts of legitimacy occur when a group of people find it "...impossible to live together or under an authority they perceive as inimical" [p.7]. In the future, Delmas feels that the conflicts of legitimacy will be more prevalent than the conflicts of sovereignty. One of the reasons for this shift in conflict type is the evolution of international law and the subsequent change in international relations. In the past, the unilateral use of military force for the acquisition of wealth and resources was understood—if not accepted—by peers within the international community. The evolution of international law, specifically the laws concerning the sovereignty of states, changed that perception. Delmas noted that "[t]he use of force needs a seal of approval from now on. The foreign affairs of States must receive external approval, since force by itself no longer legitimizes anything" [p. 195].

Typically, conflicts of legitimacy begin when a segment of the society feels the government has lost its right to rule or its legitimacy.[12] As the government becomes ineffective and loses its power over the people, conflicts of legitimacy occur. Delmas wrote:

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[12] Delmas defines legitimacy as follows: "Very broadly, when the government embodies a State effectively we call that State *legitimate* and when it embodies it ineffectively we call that State *illegitimate*" [p. 9].

> The weakness of the State is the primary and usual cause of instabilities, because it shows that the State is withdrawing from its nations....When entire urban neighborhoods or rural districts completely elude any kind of public order except the criminal kind...when none of the most basic public services...are provided, the State simply ceases to exist in the eyes of the people and of course loses all legitimacy for them. By disappearing, the State opens the door to all sorts of counter-powers, which mix criminal activities with political demands [pp. 125–126].

Thus, conflicts of legitimacy are typically in response to governmental impotence. As such, controlling and preventing these conflicts will be difficult, if not altogether impossible.

As alluded to in the preceding paragraph, Delmas believes that future conflicts will be rooted in any one of several possible causes. Delmas feels that Westerners place too much emphasis on looking for the causes of conflict. He noted that Westerners "...have a hard time getting over the rational notion that wars must happen for good reasons—that is to say, for reasons that *we* [emphasis in original] understand" [p. 157]. While the conflicts of sovereignty are typically rooted in greed or ambition, the conflicts of legitimacy will apparently have their roots in religion, ethnicity, nationalism, or political ideologies—all of which seem to be rational, or reasonably rational, causes of conflict. The key to understanding future conflict is looking beyond the apparent into the sublime. As Delmas observed,

> Examples abound of the revival of crusades of every religion. Their religious bent does not confer any special character on these movements. The forces at work are the same that motivate all crises of legitimacy and transform them into more or less open international crises. What is being done in the name of religion can also be done in the name of race, language, or nationality [p. 141].

So, if religion, race, language, and nationality can apparently be interchanged, then what is the fundamental cause of these conflicts? Delmas believes the fundamental cause is fear. He wrote:

> Contemporary wars—those that threaten to break out everywhere—are more wars of survival than power struggles. They come about not from calculated bids for power, but instead from gut fear [p. 176].

Fear is not an inherently rational. As such, conflicts that are rooted in one group's fear of another may defy any attempt to determine the rationale of the combatants.

How then will these conflicts be controlled? Will they be controlled? Delmas is not sure. He observed that

> Most of the world crises of the future will be political orphans. There will be no State with a political vision or Superpowers concerned to maintain global equilibrium to watch over them. Like the wars of ghetto children they will have no internal or external controls unless they threaten to overflow their boundaries [p. 149].

Delmas believes that politico-military or politico-economic alliances, such as NATO and the EU, will be considered attractive by states worried about internal political or ethnic conflicts because of the stabilizing influence of these organizations. In a discussion about the Eastern

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European nations that were formerly allied with the Soviet Union and are now seeking membership in NATO, Delmas observed that

> They see NATO less as the organization that prevented war with Russia than as a political organization that prevents wars between Greece and Turkey and that is tipping the latter from the unstable and underdeveloped Middle East into the European sphere [p. 53].

However, despite their historical stability, Delmas questions the future stability of these alliances because they have not yet experienced any serious internal disagreements. A serious disagreement between members could theoretically destroy an alliance. Delmas wrote that

> It is hard to imagine that economic integration will be able to long survive major policy differences in matters of security when, in the wake of a crisis, each country would feel abandoned or betrayed by the others. Inevitably, the legitimacy of the entire community's ties would be called into question [p. 103].

Philippe Delmas' book, *The Rosy Future of War*, provides some interesting insight into the types and causes of future conflict and the roles and influences multinational alliances might have upon them. According to Delmas, the future will be grim, marked by intrastate conflicts caused by ineffective governments and sustained by the unwillingness of the international community to become entangled in affairs not their own.

In Athena's Camp

In Athena's Camp: Preparing for Conflict in the Information Age
Arquilla, John, and David Ronfeldt, eds.
1997
Santa Monica, California: RAND
501 pp.

In Athena's Camp: Preparing for Conflict in the Information Age is a collection of 18 essays. While most of the essays concentrate on facets of future conflict (e.g., information warfare, transnational crime, terrorism), Part I of the book presents the reader with an overview view of netwar, cyberwar, and the revolution in military affairs (RMA). The two editors, John Arquilla of the Naval Postgraduate School and David Ronfeldt of RAND, believe that netwar and cyberwar "...in particular are going to define the information-age conflict spectrum." Their book examines the implications and consequences of such a transformation. Authors include notable figures such as Carl H. Builder and Martin C. Libicki.

Arquilla and Ronfeldt, who authored the first two chapters, begin their work by defining netwar and cyberwar. Netwar is

> ...information-related conflict at a grand level between nations or societies. It means trying to disrupt, damage, or modify what a target population "knows" or thinks it knows about itself and the world around it. A netwar may focus on public or elite opinion, or both. It may involve public diplomacy measures, propaganda and psychological campaigns, political and cultural subversion, deception of or interference with local media, infiltration of computer networks and databases, and efforts to promote a dissident or opposition movements across computer networks [p. 28].

Arquilla and Ronfeldt believe that there are three types of netwar: interstate (nation-state vs. nation-state), intrastate (nation-state vs. non-state actor), and other (non-state actor vs. non-state actor).

Cyberwar refers to the conduct of

> ...military operations according to information-related principles. It means disrupting if not destroying the information and communication systems, broadly defined to include even military culture, on which an adversary relies in order to "know" itself: who it is, where it is, what it can do when, why it is fighting, which threats to counter first, etc. It means trying to know all about an adversary while trying to keep it from knowing much about oneself....It means using knowledge so that less capital and labor may have to be expended [p. 30].

The editors note that a single theater of operations may have both netwar and cyberwar components. If the U.S. military is to be prepared for both types of conflict, Arquilla and Ronfeldt believe that the Services must initiate profound organizational reforms [pp. 1–30] because both netwars and cyberwars will be fought differently from historical armed conflicts. Arquilla and Ronfeldt argue that changes will be motivated by both our adversaries and the development of new technologies. They noted that

> Most adversaries that the United States and its allies face in the realms of low-intensity conflict—international terrorists, guerrilla insurgents, drug smuggling cartels, ethnic factions, as well as racial and tribal gangs—are all organized like networks (although their leadership might be quite hierarchical). Perhaps a reason that the military (and police) institutions keep having difficulty engaging in low-intensity conflicts is because they are not meant to be fought by institutions [p. 40].

The second of the two factors that will require organizational reform is technological advances. Arquilla and Ronfeldt believe that

> ...inserting the new technology into old ways may create some new efficiencies, even as some activities become more efficient. It may take still more time to realize that the activity itself—in both its operational and organizational dimensions—should be restructured, even transformed, in order to realize the full potential of the technology [p. 41].

The reorganization of forces will allow for the realization of an RMA [pp. 31–60].

The third essay, Stephen J. Blank's "Preparing for the Next War: Reflections on the Revolution in Military Affairs" [pp. 61–77], examines the implications and consequences of an RMA. Blank points out that

> During times of economic stringency such as our own, leaders concentrate on the immediate future, not the distant strategic horizons and unglamorous issues of economic preparedness and mobilization. But if we are to fight high-tech wars in the future, we must raise those issues now. Only then can we manufacture and procure technologies, systems, and forces that will allow us to perform credibly in future wars [p. 62].

An overreliance on any one of the three aforementioned components of a military force (technologies, systems, and forces) can diminish the overall effectiveness of a military force (e.g., implementation of a new technology without related changes in doctrine and organization) or unfavorably affect the state who possesses it (e.g., maintaining a force structure beyond the means of the state). Blank offers the following "Lessons for Consideration":

- The realization of a vision of future warfare requires a state's political leaders to restructure all organizations related to that vision. Such a restructuring process should also identify the aspects of the vision that are "strategically risky" or beyond the state's ability to realize.

- The advantages of technology are diminished if relevant changes are not made in organization and doctrine.

- "…organization, in and of itself, should also be viewed as a form of applied technology for *warfighting purposes* [emphasis in original]."

The fourth essay, "An Information-based Revolution in Military Affairs" by Norman C. Davis [pp. 79–98], also examines the RMA and the implications of an RMA on military institutions. Davis believes that as the geostrategic environment changes from a system that exists between nation-states to one in which non-state actors play an increasingly important role, the military institutions will also have to change lest they become irrelevant. If military institutions are to achieve the RMA that is desired, they must look beyond simply implementing new technologies because

> Creating a revolution is…more than pushing the limits of military technology; it is an active process that requires effective adaptation by individuals and organizations for successful exploitation to occur [p. 80].

and

> Truly revolutionary developments often do not merely enhance the ability to fulfill existing missions but, rather, are best suited to perform new missions or meet previously unidentified requirements [p. 81].

This transformation into a "new" warfighting organization is not an easy one to make. For the transformation to be successful, Davis believes that not only must the innovations be embraced by the institution, but some sense of continuity must exist between the innovator and his successors in the ranks of junior officers. He noted that

> …the historical tendency of military organizations has been to use new capabilities to support existing missions, and to oppose new capabilities that threaten existing missions. For real innovation to occur, the doctrinal and organizational implications of new capabilities must be translated by senior officers into new critical military tasks and missions for the entire organization [p. 90].

To realize the changes necessary for an American RMA, Davis suggests developing a single, overarching command, control, communications, computers, intelligence, surveillance, and reconnaissance (C^4ISR) system that could be used by all four Services (the military would only develop and acquire the weapons systems that can be integrated into it) and shifting from a hierarchical command structure to a networked command structure.

Jeffrey R. Cooper's "Another View of the Revolution in Military Affairs" provides the reader with an excellent study on the meaning, components, and products of an RMA. Cooper examines the RMA from both sides of the fence: What benefits might an RMA have for the United States? How will changes in the geostrategic environment affect America's efforts at realizing an RMA?

Cooper notes that there are four components of an RMA: operational innovation, organization adaptation, evolving military systems, and emerging technologies. An RMA can be one of three different types:

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- RMAs "...driven by fundamental scientific or technological inventions or developments" [p. 117]

- RMAs "...driven by operational and organizational innovation to redress a strategic problem..." (e.g., Blitzkrieg) [p. 117]

- RMAs "...driven by fundamental economic, political, and social changes outside the immediate military domain" [p. 118].

An RMA is different from military innovation because it implies a radical and discontinuous change in military capabilities or effectiveness.

Cooper also examines some of the challenges that the U.S. military will be forced to confront in the future (e.g., opposed deployments, fast-paced enemy campaigns, the enemy employment of low-signature forces). To meet these challenges effectively, Cooper believes that the U.S. military must examine the future environment as opposed to adhering strictly to their institutional vision of the future.

As noted earlier, the remainder of the book examines different aspects of the netwar and cyberwar. This book is useful because it provides the reader with a broad overview of the RMA and with specific case studies examining its implications across the spectrum of conflict. The essays are generally short and well written.

Breaking the Phalanx

Breaking the Phalanx: A New Design for Landpower in the 21st Century
Macgregor, Douglas A.
1997
Westport, Connecticut: Praeger Publishers
283 pp.

In *Breaking the Phalanx: A New Design for Landpower in the 21st Century*, author Douglas A. Macgregor discusses some of the reforms that the U.S. Army should initiate so that it is better prepared for future conflicts. While the author discusses revolutions in military affairs (RMA) and future conflict in general terms, this book on the whole is very Army-centric and promotes the Army over—and often at the expense of—the other Services.

Macgregor argues that the U.S. military should reorganize itself to respond better to the actions of our future adversaries (i.e., those who learned from the Iraq's failures and have taken steps to counter or parry America's strengths). Specifically, Macgregor feels that the Services need to interact more effectively (i.e., become more joint), improve upon their ability to deploy at both the strategic and operational levels of war, and maintain their combat power while increasing their ability to conduct information warfare operations (as opposed to developing infowar capabilities at the expense of traditional combat power). Although this work focuses on mid- and high-intensity conflicts, he argues that the force structure he recommends (U.S. Army Combat Groups of varied composition) will also be capable of fulfilling missions at the low-intensity end of conflict.

Like many authors who have written about future conflict and revolutions in military affairs, Macgregor argues that civil and military leaders must look beyond technological advances to tactical and organization reforms to realize the greatest increases in military effectiveness. The perception that advances in technology are the key ingredients in increasing the U.S. military's warfighting capabilities is common within and without the Armed Services. Macgregor believes that such a view is not only historically inaccurate but strategically dangerous. He noted that

> The passion for new military technology and the desire for quantum leaps in capability that it can provide often lead policymakers to overlook the importance of the right organization for combat within a coherent doctrinal framework [p. 3].

and

Devoid of a strategically significant objective, an American military strategy based primarily on ships, planes, and precision-guided munitions potentially forfeits military flexibility and courts strategic irrelevance in the 21st century [pp. 5–6].

Macgregor argues that the full potential of new weapon systems can be realized only by reorganizing military institutions and organizations so that they are more capable of employing new technologies. Failure to do so will result in only an incremental (as opposed to radical) increase in organizational efficiency [p. 4].

For many reasons, this organizational (or institutional) reform is not always as easy to accomplish as one might suppose. Macgregor noted that

Most arguments for or against change in the contemporary U.S. Armed Forces reflect a large measure of vested interest. Military leaders with a strong allegiance and nostalgia for the arms to which they have devoted their lives do not relish the idea of change [p. 32].

Overcoming such resistance often requires extraordinary means. Macgregor cited the example of General Marshall who, in his first year as Army Chief of Staff, "…retired or relieved 500 General Officers and Colonels from the Regular Army in order to elevate a new generation of officers with a different view of warfare" [p. 42].

Despite their overwhelming success in Operation Desert Storm, Macgregor believes that the American military institutions must innovate because future conflicts will be different than the Persian Gulf War. In Macgregor's opinion, future conflicts will not involve a series of set-piece battles and campaigns fought in the manner of America's previous wars. Rather, in future conflicts,

…the tactical, operational, and strategic levels of war as separate and distinct loci of command and functional responsibilities will be spaced and timed out of existence [p. 49].

In addition, these conflicts will be

…conducted in an environment where the possibilities for deception are endless, the weapons of mass destruction are ever-present, and the requirement to dominate the battlespace is paramount. [p. 69]

As mentioned earlier, Macgregor perceives that future conflicts will more than likely be mid- to high-intensity conflicts "…between regional powers that will seek to exploit new information age military technology for limited regional aims…" and, as such, "…will still involve closing with the enemy and killing him at close range" [p. 124]. The difference between these future conflicts and Operation Desert Storm is that potential adversaries have learned from Iraq's failure (and America's success) in the Persian Gulf War. Macgregor feels that

…very few future enemies are likely to remain as vulnerable to U.S. attack from the air and on the ground as was Iraq. None will indulge the slow, deliberate buildup of [American] combat power and the conservative conduct of operations that characterized the Gulf War [p. 176].

For the United States to be successful in future conflicts, Macgregor recommends that the U.S. military adopt a better joint infrastructure system, be capable of rapid strategic and operational deployment, and maintain combat power while enhancing infowar capabilities. He also firmly believes that future conflict will require better interaction and integration between the four Services. However, he refutes the perception that the failure to integrate (i.e., become joint) is the result of Service-based resistance. In Macgregor's opinion, the real cause is

> ...the absence of a common operating environment created by flexible and robust joint command, control, communications, [computers], and intelligence (C4I) systems embedded in the warfighting organizations of the Services [p. 71].

Despite the preceding excerpt, he concedes that because

> ...the Services tend to fight in dissimilar environments, single-Service doctrine becomes an instrument of self-preservation that often accelerates the centrifugal forces that pull the services apart [p. 190].

Macgregor also feels that future military success will require the U.S. military to be capable of rapidly deploying to a developing theater of war. Such a deployment would allow combat operations to begin earlier in the conflict and assume more of a preemptive (as opposed to reactive) character. As he noted,

> No observer of the last four years would deny that the most striking feature of the new strategic environment is the dependence of the national command authorities on the readiness of U.S. Ground Forces to move quickly and decisively [p. 150].

In the book, this recommendation was made solely with the U.S. Army in mind, but it seems to have implications for each of the Services and the Joint community.

In addition to the need for better integration between the Services and rapid deployment, the U.S. military be capable of "...closing with the enemy and killing him at close range" in addition to developing infowar capabilities [p. 124]. Macgregor, with his pro-Army bias, feels that a strong Army is the most effective way of accomplishing this goal. To support his position, he noted that

> Airpower tends to operate in surges of firepower and does not apply constant pressure against enemy forces. It is also very vulnerable to periodic swings in technology [p. 126].

and

> Sea-based forces are ideal targets for weapons of mass destruction when they attempt to execute forced entry operations from the sea. The concentration of several thousand sailors, airmen, and Marines in an amphibious or Nimitz-class aircraft carrier risks single-point failure in future warfighting [p. 127].

In addition to the previously discussed recommendations, Macgregor also examined several other topics that were integral to the changes he felt the U.S. Army should make to ensure their continued relevance (i.e., Service-specific recommendations). Among these were the need for the Army to reorganize itself into more useful combat units (typically entailing

combined arms in smaller organization units), the adoption of a 180-day operational readiness cycle, the acceptance of tactical and operation initiative (as opposed to strict adherence to a predetermined plan), and reforms in the military education system. These topics were not discussed or examined within this review because of their Service-specific nature.

In *Breaking the Phalanx: A New Design for Landpower in the 21st Century*, Douglas A. Macgregor provides the reader with some thought on what the U.S. military must do to ensure their continued success on future battlefields. While the book is heavily biased in favor of the U.S. Army, it is possible to extrapolate his beliefs so that they are relevant to the Joint community. In Macgregor's opinion, the U.S. military must increase inter-Service integration (i.e., jointness), enhance their ability to deploy rapidly to developing theaters of conflict, and retain combat power while enhancing their ability to perform infowar operations. Macgregor, like many other authors who write about military revolutions or innovations, warns the reader against the attraction to and preference for technological solutions over organizational or institutional reforms.

America's Military Revolution

America's Military Revolution: Strategy and Structure after the Cold War
Odom, William E.
1993
Washington, DC: American University Press
172 pp.

The title of Lieutenant General Odom's book might mislead the reader. While there are recommendations for organizational reforms in the fashion of the Defense Reform Initiative and recommendations for force structure alignment in the vein of the bottom-up review, there is little in the way of what most would consider a revolution in military affairs (RMA). The effects of the author's distinguished career in the U.S. Army are apparent throughout. His credentials include being director of the National Security Agency (NSA) after a long career in military intelligence.

National Security Discussion

There is a common five-step process for determining U.S. force structure. Odom acknowledges that the textbook process is rarely followed in practice, but he finds the sequence a useful tool for exposition. The outline of the book follows accordingly.

- What is the strategic environment, or change in the strategic environment, and what role will the United States play in the world?

- What strategy will be employed in playing that role?

- How does the United States apply the strategy? What global issues and what particular regions are key to its implementation? Where and how can military forces best complement the political and economic components of the strategy?

- What is the nature and character of future war? How will new technologies revolutionize warfare?

- What force structure will underwrite the strategy? What kinds and levels of forces should be built and how should they be armed?

Chapter 1 begins with a familiar refrain: there remain many causes for war; the international structure is weakening; the collapse of the Soviet Union reopens issues along its southern border with its large Muslim population and its eastern border with Korea,

Manchuria, and China; some countries have powerful means for war; and the world is less stable, not more.

In Chapter 2, Odom identifies three broad grand strategies that the United States could adopt—*Pax Americana*, America first, and selective engagement.

- *Pax Americana.* Under this strategy, the United States would pursue hegemonic leadership that will ensure international order. Diplomacy for this strategy would seek to prevent the formation of significant anti-U.S. alliances. The cost of military forces would be high but not prohibitive. However, the unilateralism upon which this strategy rests will eventually build resentment that will foster the threat that it was meant to avoid.

- **America first.** The basic tenet of this strategy is to leave the leadership role to other nations and concentrate on dealing with domestic issues. American diplomats would be engaged in prodding Western European states and Japan to fill the security gap. The cost of the military would be small, but it is unclear that we would achieve a dividend unless Congress abandons pork-barrel elements of defense spending, such as preventing the necessary base closures.

- **Selective engagement.** This strategy assumes a major leadership role for the United States, without aspiring to be the global hegemon. Cold War security alliances would be maintained and adapted. The United States would rely on allies to maintain regional power balances. Diplomats would focus on maintaining alliances. The military could be reduced and used selectively, usually with allies.

Selective engagement is Odom's obvious choice for a grand strategy. For a better discussion of this type of strategic thinking, see John Lewis Gaddis' *Strategies of Containment*. Odom's discussion does little to shift thinking away from Cold War strategies described in Gaddis' book.

In Chapter 3, Odom identifies the regions that he believes to be integral to and on the periphery of American national interests:

- **Europe to the Urals.** An alliance with Germany will remain the linchpin of the United States' involvement in Europe. Forward-deployed troops will continue to be necessary.

- **Northeast Asia.** Reunification of Korea is asserted as an American priority. Ground forces must remain in Korea. Basing forces in Japan must be continued (Odom's beliefs seem to discount Kennan's formulation of containment, which excluded any vital U.S. interest in Korea specifically and Asia in

general and instead suggested strong point defense of Japan, Okinawa, and the Philippines).

- **Central America and the Caribbean.** This region is dismissed almost out of hand as are the low-intensity conflict forces that operate in this area. Odom argues that special operations and low-intensity conflict (SOLIC) advocates use the counter-drug mission to bolster their claims on resources. He further argues that the Department of Defense (DoD) should play a part in the counter-drug mission. By dismissing Latin America, the author has apparently dismissed the low-intensity conflict and operations other than war (OOTW) end of the spectrum worldwide, as well as the force structure needed to support it.

- **Middle East and Southwest Asia.** This region remains problematic and requires large military force structure.

In Chapter 5, Odom uses the areas identified as problematic and of strategic significance to argue for and against particular force structures and types.

Chapter 4 identifies the problems and opportunities posed by changing technology. Odom noted that

> Another unhappy aspect of the new technological realities is that U.S. military staffs have not yet worked out all the details of effective new doctrine for exploiting them. Higher level commanders tend to get overly involved in low-level operations, over-controlling and micromanaging commanders in the field.

On learning how to exploit these new means of communications and intelligence, Odom stated that "[w]ithout occasional operations to provide some empirical experience, the learning process is bound to be slow down, if not become paralyzed by parochial interests" [pp. 47–65].

The author argues for ballistic missile defense (BMD) and against sea-based capabilities. Instead, Odom suggests moving surveillance capabilities from sea-based systems to shore-based aviation and space-based platforms. Furthermore, he argues against carrier battle groups in favor of precision-guided weapons delivered by less expensive surface combatants or even transport ships. Odom feels that space is blurring the boundary between sea and land (an argument that seems to be an incremental step from the one espoused by air power enthusiasts for the past several decades).

Odom takes on the "victory through air power" claim from the Gulf War by presenting official DoD data. One table shows the day-by-day equipment degradation in the Kuwait Theater of Operations, and the text points out that most of the equipment destruction took place only after the ground war began. Implicit for the reader is that there was no real victory through air power. Oddly, the equipment degradation shown was for tanks, armored personnel carriers, and artillery pieces. Since ground weapons were not prominent features of the air component's target set during the air war, they might not be the best measures of

effectiveness (MOEs) of air operations during the Persian Gulf War. Odom did not address this perception in his book.

A summary of implications includes:

- Industrialization of Third World countries means that they will employ large industrialized forces.

- Potent U.S. conventional forces will serve as a powerful deterrent to those countries.

- Internal wars may be on the rise.

- Strategic lift will be a major factor in future warfare. En-route basing and support are required.

- Large nuclear attacks are much less likely, but limited attacks by Third World countries might be more likely.

- New technologies will continue to arrive, but "[a]dapting organizations and maintaining political support will be far more difficult [than engineering applications]."

Force Structure Implications

Chapter 5 makes force structure recommendations. Throughout this chapter and the remainder of the book, several types of forces are referred to as antique or obsolescent. Forces considered antiques and candidates for almost total elimination include Army infantry, light infantry, and airborne divisions; marine amphibious [*sic*] divisions; and Army reserve component (RC) heavy units.

Strategic Forces

Fewer nuclear forces and more limited nuclear options are needed. The bomber leg of the nuclear triad can be eliminated or dramatically reduced. The current intercontinental ballistic missile (ICBM) force should gradually be replaced with a smaller mobile ICBM force. Odom argues for a big plus up on strategic defense.

Conventional Forces

Table 1 summarizes the Odom's conventional force structure recommendations. He believes that two wings, or about 150 bombers, should be adequate for the conventional bomber role. As for tactical aviation, the Air Force needs to upgrade its ability to provide close air support to the Army. This, he argues, should come at the expense of the interceptor and interdiction capabilities necessary to secure air superiority. He derives tactical

Table 1. Conventional Force Structure

Army Ground Forces [Active Component (AC)]	
Heavy corps in Germany (1)	Heavy divisions (2), ACR (1), and support.
Heavy corps in Korea (1)	Heavy divisions (2 or 1), ACR (1), and support.
Expeditionary heavy corps for the Middle East (2 or 1) in CONUS	Heavy divisions (3), ACR (1) for each corps, CONUS based.
Combat development corps (1)	Heavy divisions (2 or 1)
Air assault divisions (1 or 0)	Optional
Separate airborne brigades (2) Ranger battalions (3)	For forced entry
Totals	Heavy division equivalents (15 to 12)
Marine Forces	
Marine Amphibious [*sic*] Division (1)	
Air Forces	
Bomber wings (2)	150 bombers
Tactical air wings (15 or 12)	One per Army division
Airlift (++)	Requires big plus up
Naval Forces	
Carrier battle groups (7)	
Attack submarine force (--)	Smaller and more diversified
Sealift (++)	Requires big plus up
Aviation	Shift significantly from carrier-based to land-based aviation

aviation requirements from ground requirements: there should be 12 to 15 tactical air wings, one for each Army division. Finally, he reminds the reader that the U.S. Air Force has seriously neglected airlift in favor of fighters.

Odom believes that aircraft carriers generate their own requirement for additional ships. A focus on carriers and ship-based aviation leaves inadequate attention to less glamorous but more useful things like minesweepers. He recommends a naval force structure built around seven carriers. Air power on carriers is weak, and land-based air is less costly. Where we cannot base on land, forced entry by airborne assault could provide air basing on land. For the Navy, Odom argues for increased attention on missile-carrying, land-based aviation with aerial refueling and long loiter times. He recommends a large reduction in attack submarine

forces. Just as he criticized the Air Force for neglecting airlift, he criticizes the Navy for neglecting sealift.

The Marine Corps is criticized for not having a corps headquarters that can command more than a single division [Odom neither mentions or examines the Marine Expeditionary Forces, Headquarters (MEF HQ)], for lacking an adequate armored capability, and for not being able to sustain inland operations. Odom believes that "[t]he United States probably will keep and support those increasingly obsolescent marine forces, but we ought to realize that they are an antique luxury." He recommends retaining, at the very most, one Marine division to maintain an amphibious assault capability.

Odom's recommendations for the naval services will not support the current policy of maintaining a worldwide naval presence in times of peace. The number of carriers and Marine divisions are a base from which deployed forces are generated. Odom's force structure recommendations are not preceded by any discussion of changing that long-standing policy.

The author's argument for Army ground forces is better developed than his arguments for the other Services. The United States needs four heavy army corps: one corps forward-deployed in Germany, one corps forward-deployed in Korea, and two expeditionary corps stationed in the Continental United States (CONUS) for rapid deployment to Southwest Asia or the Middle East. Each needs an armored cavalry regiment (ACR) corps support command (COSCOM) and two or three heavy divisions. From the current inventory of non-heavy divisions, only the 101st Airborne (Air Assault) division is considered for retention, but the author's support for it is not particularly strong [p. 85]. An additional corps with two heavy divisions is recommended as a strategic reserve and for combat developments.

"Large airborne units are at least as much an anachronism as the marine amphibious [*sic*] divisions." The author recommends disestablishing the XVIII Airborne Corps and replacing it with a heavy corps headquarters. The 82nd Airborne division structure should also be abandoned, while retaining one or two separate airborne brigades. "The airborne lobby within the army, however, has remained powerful, and this antique force structure reflects its strength." Given the airborne brigades and the three Ranger battalions, Odom sees no need for any infantry or light infantry in the Army.

The Army RC is also due for serious structural reform according to Odom. The active component (AC), he argues, must be free from National Guard heavy round-out brigades. As for the RC's infantry divisions, he states that they are "organized and equipped on the pattern of the regular divisions of the 1950s and early 1960s." However, their heavy divisions are organized on the "latest heavy-division pattern." "[The reserve component] has persuaded members of Congress to obstruct the Department of the Army's efforts to tailor its force structure more efficiently to assigned missions."

Defense Management and Organization Issues

Chapters 6 through 10 address coalition management; intelligence; space; the Pentagon; and industrial mobilization, logistics, and military research and development (R&D). These closing chapters are relatively short with some useful observations from someone who has worked at this level. However, there is not much that is actionable or that has to do with an RMA. Chapter 6 suggests that coalitions will be more difficult to form in the future because of the loss of a common foe. The author argues for retaining the North Atlantic Treaty Organization (NATO) and Far East command structures. Chapter 7 discusses changes at the intelligence agency level [Central Intelligence Agency (CIA), National Security Agency (NSA), and the Defense Intelligence Agency (DIA)] and focuses mostly on the CIA and Director of Central Intelligence (DCI). In Chapter 8, the author juxtaposes the National Aeronautics and Space Administration (NASA) and the United States Space Command (USSPACECOM) and discusses problems that are more in the roles and missions vein.

Chapter 9 begins with an organizational chart review and concludes by urging the creation and application of meaningful performance measures to guide force structure design, training, and readiness. Odom concurs with granting greater authority to the Joint community and even recommends fiscal budget authority to the Joint Staff similar to that of the military departments.

Chapter 10 provides some interesting perspectives on the balance between expenditures for R&D and those for procurement. Congress, he asserts, shows a preference for more procurement of weapon systems, including the Abrams tank, the F-14, and the Seawolf submarine. The Services have expressed a desire to reduce procurement of today's weapons in favor of increase funding of R&D for the next generation. Odom asserts "[t]hat the U.S. really ought to stay in the qualitative arms race although no other country may be competing" [p. 156]. Others have argued that the United States should focus almost entirely on R&D that culminates in only a few prototypes. Odom argues against this school of thought by saying that organization and doctrine always lag behind technology. Moreover, providing the Services with a sufficient number of new systems is the only way for them to experiment and develop the new organizations and doctrine essential for full exploitation of new systems.

Bibliography

Arquilla, J. and D. Ronfeldt, eds., *In Athena's Camp: Preparing for Conflict in the Information Age*. RAND, Santa Monica, California, 1997.

Connaughton, R., *The Nature of Future Conflict*, Leo Cooper, London, 1995.

Cronin, P.M., ed., *2015: Power and Progress*, National Defense University Press Washington, DC, 1996.

Delmas, P. [translated by Atamian, C., and C. Hewitt], *The Rosy Future of War*, The Free Press, New York, 1995.

Friedman, G., and M. Friedman, *The Future of War: Power, Technology, and American Dominance in the 21st Century*, Crown Publishers New York, 1996.

Institute for National Strategic Studies, *Project 2025*, National Defense University Washington, DC, 1992.

Macgregor, D.A., *Breaking the Phalanx: A New Design for Landpower in the 21st Century*, Praeger Publishers, Westport, Connecticut, 1997.

Odom, W.E, *America's Military Revolution: Strategy and Structure After the Cold War*, American University Press, Washington, DC, 1993.

Toffler, A., and H. Toffler, *War and Anti-War*, Warner Books, New York, 1995.

van Creveld, M., *The Transformation of War*, The Free Press, New York, 1991.

Glossary

AC	active component
ACR	armored cavalry regiment
BMD	ballistic missile defense
C^2	command and control
C^4I	command, control, communications, computers, and intelligence
C^4ISR	command, control, communications, computers, intelligence, surveillance, and reconnaissance
CDISS	Centre for Defence and International Security Studies
CIA	Central Intelligence Agency
CONUS	Continental United States
DCI	Director of Central Intelligence
DIA	Defense Intelligence Agency
DoD	Department of Defense
EU	European Union
ICBM	intercontinental ballistic missile
IDA	Institute for Defense Analyses
JWAP	Joint Advanced Warfighting Program
MEF HQ	Marine Expeditionary Force, Headquarters
MOE	measure of effectiveness
MOOTW	military operations other than war
MTR	military technical revolution
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NDU	National Defense University
NSA	National Security Agency
OOTW	operations other than war
R&D	research and development

RC	reserve component
RMA	revolution in military affairs
ROE	rules of engagement
SOLIC	special operations and low-intensity conflict
U.S.	United States
UN	United Nations
USACOM	U. S. Atlantic Command
USSPACECOM	United States Space Command
WMD	weapons of mass destruction

Index

The contents of this index were determined by the first and/or significant use of the indexed term. It is by no means an exhaustive index, but rather is meant to provide the reader with a basic "roadmap" for the document.

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The nature and character of future conflict has recently become an important topic in both civilian and military circles. This document is meant to provide the reader with a basic understanding of the recent literature that has examined the implications and consequences of future conflict. The end of the Cold War has not diminished the possibility of confrontation and conflict. Because of this, the United States must look to the horizon and attempt to identify and define the threats and challenges that will affect our national security. The books that were abstracted for this document offer the reader with a conceptual foundation as to what the implications and consequences of future conflict might be.

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